CLAIMS

What is claimed is:

1. A system for suppressing wind noise from a voiced or unvoiced signal, comprising:

a noise detector that detects and models a wind buffet from an input signal; and

a noise attenuator electrically connected to the noise detector to substantially remove the wind buffet from the input signal.

2. The system for suppressing wind noise of claim 1 where the noise detector models a line to a portion of the input signal.

3. The system of claim 2 where the noise detector is configured to fit a line to a portion of the input signal in a SNR domain.

4. The system of claim 1 where the noise detector is configured to model the wind buffet by calculating a signal offset.

5. The system of claim 1 where the noise detector is configured to prevent the attributes of the modeled wind buffet from exceeding their respective average values.

6. The system of claim 1 where the noise detector is configured to limit a wind buffet correction when a vowel or a harmonic like structure is detected.

7. The system of claim 1 where the noise detector is configured to derive an average wind buffet model, and the average wind buffet model is not updated when a voiced or a mixed voice signal is detected.

8. The system of claim 1 where the noise detector is configured to derive an average wind buffet model that is derived by a weighted average of other modeled signals analyzed earlier in time.

9. The system of claim 1 where the noise attenuator is configured to substantially remove the wind buffet and a continuous noise from the input signal.

10. The system of claim 1 further comprising a residual attenuator electrically coupled to the noise detector and the noise attenuator to dampen signal power in a low frequency range when a large increase in a signal power is detected in the low frequency range.

11. The system of claim 1 further including an input device electrically coupled to the noise detector, the input device configured to convert sound waves into analog signals.

12. The system of claim 1 further including a pre-processing system coupled to the noise detector, the pre-processing system configured to pre-condition the input signal before the wind noise detector processes it.

13. The system of claim 12 where the pre-processing system comprises first and second microphones spaced apart and configured to exploit a lag time of a signal that may arrive at the different detectors.

14. The system of claim 13 further comprising control logic that automatically selects a microphone and a channel that senses the least amount of noise in the input signal.

15. The system of claim 13 further comprising a second noise detector coupled to the noise detector and the first microphone.

16. A system for detecting wind noise from a voiced and unvoiced signal, comprising:

a time frequency transform logic that converts a time varying input signal into the frequency domain;

a background noise estimator coupled to the time frequency transform logic, the background noise estimator configured to measure the continuous noise that occurs near a receiver; and

a wind noise detector coupled to the background noise estimator, the wind noise detector configured to automatically identify and model a noise associated with wind.

17. The system of claim 16 further comprising a transient detector configured to disable the background noise estimator when a transient signal is detected.

18. The system of claim 16 where the wind noise detector is configured to derive a correlation between the line and a portion of the input signal.

19. The system of claim 16 further comprising a signal discriminator coupled to the wind noise detector, the signal discriminator configured to mark the voice and the noise segments of the input signal.

20. The system of claim 16 further comprising a wind noise attenuator coupled to the wind noise detector, the wind noise attenuator configured to reduce the noise associated with the wind that is sensed by the receiver.

21. The system of claim 16 where the noise attenuator is configured to substantially remove the noise associated with the wind from the input signal.

22. The system of claim 16 further comprising a residual attenuator coupled to the background noise estimator operable to dampen signal power in a low frequency range when a large increase in signal power is detected in the low frequency range.

23. A system for suppressing wind noise from a voiced or unvoiced signal, comprising:

a time frequency transform logic that converts a time varying input signal into the frequency domain;

a background noise estimator coupled to the time frequency transform logic, the background noise estimator configured to measure the continuous noise that occurs near a receiver;

a wind noise detector coupled to the background noise estimator, the wind detector configured to fit a line to a portion of an input signal; and

a wind attenuator coupled to the wind noise detector means; the wind attenuator being configured to remove a noise associated with wind that is sensed by the receiver.

24. A method of removing a wind buffet from an input signal comprising:

converting a time varying signal to a complex spectrum;

estimating a background noise;

detecting a wind buffet when a high correlation exists between a line and a portion of an input signal; and

dampening the wind buffet from the input signal.

25. The method of claim 24 where the act of estimating the background noise comprises estimating the background noise when a transient is not detected.

26. The method of claim 24 where the act of removing the wind buffet signal comprises substantially removing the wind buffet from the input signal.

27. A method of removing a wind buffet from an input signal comprising:

converting a time varying signal to a complex spectrum;

estimating a background noise;

detecting a wind buffet when a high correlation exists between a line and a portion of an input signal; and

removing the wind buffet from the input signal.

28. A signal-bearing medium having software that controls a detection of a noise associated with a wind comprising:

a detector that converts sound waves into electrical signals;

a spectral conversion logic that converts the electrical signals from a first domain to a second domain; and

a signal analysis logic that models a portion of the sound waves that are associated with the wind.

29. The signal-bearing medium of claim 28 further comprising logic that derives a portion of a voiced signal masked by the noise.

30 The signal-bearing medium of claim 28 further comprising logic that attenuates portion of the sound waves.

31. The signal-bearing medium of claim 28 further comprising attenuator logic operable to limit a power in a low frequency range.

32. The signal-bearing medium of claim 28 further comprising noise estimation logic that measures a continuous or ambient noise sensed by the detector.

33. The signal-bearing medium of claim 32 further comprising transient logic that disables the estimation logic when an increase in power is detected.

34. The signal-bearing medium of claim 28 where the signal analysis logic is coupled to a vehicle.

34. The signal-bearing medium of claim 28 where the signal analysis logic is coupled to an audio system.

35. The signal-bearing medium of claim 28 where the signal analysis logic models only the sound waves that are associated with the wind.